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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,796	11/20/2002	Andrew A. Adamczyk	201-0145	6560
28395	7590	01/15/2004	EXAMINER	
BROOKS KUSHMAN P.C./FGTL 1000 TOWN CENTER 22ND FLOOR SOUTHFIELD, MI 48075-1238			LAWRENCE JR, FRANK M	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/065,796	ADAMCZYK ET AL.	
	Examiner	Art Unit	
	Frank M. Lawrence	1724	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
    1. ☐ Certified copies of the priority documents have been received.  
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Objections*

1. Claim 14 is objected to because of the following informalities: In line 3 of claim 14, "that" should be inserted after "ratio" to clarify the meaning and conform to the wording of claim

1. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Hertl et al. (5,417,947).

4. Hertl et al. ('947) teach a system and method for removing hydrocarbons from a vehicle exhaust, comprising contacting the exhaust with a hydrophilic molecular sieve having a 2.5-4 angstrom pore diameter (col. 3, lines 3-11) to remove water, followed by contacting with a hydrocarbon removing material downstream of the water removing material. The hydrocarbon removing material can be a Y-type faujasite zeolite having a Si/Al ratio of greater than 5 (col. 4, lines 5-11). The pores of the water removing material are small enough to prevent molecules larger than water from being adsorbed (col. 1, lines 60-66), meeting the limitations of claims 9 and 22. The hydrocarbon adsorbent adsorbs hydrocarbons at engine start-up and desorbs at engine exhaust temperatures (col. 3, lines 51-59). Although the temperature at which hydrocarbon desorption occurs is only indicated as above 150° C, it is submitted that one skilled

in the art would recognize from the teaching of Hertl et al. that the engine exhaust temperature would dictate what type of zeolite is used, and that desorption at lower than the temperature at which the hydrocarbon conversion catalyst operates should be avoided so that unconverted hydrocarbons are not released to the atmosphere.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hertl et al. ('947) in view of Minami et al. (5,140,811).

7. Hertl et al. ('947) disclose all of the limitations of the claims except that less than 50% of the low molecular weight hydrocarbons desorb from the hydrocarbon-removing material at a temperature of about 300° C, although a temperature of greater than 150° C for hydrocarbon desorption is disclosed as discussed in paragraph 4 above. Minami et al. ('811) disclose a hydrocarbon trap for IC engine exhaust, comprising a zeolite adsorbent (such as Y-type) designed to adsorb hydrocarbons up to a temperature up to 250 or 300° C then desorbs the hydrocarbons at above those temperatures to be converted in a downstream catalyst (col. 2, lines 19-26; col. 4, line 48 to col. 5, line 10). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the zeolite used in Hertl et al. ('947) so that it does not desorb hydrocarbons until a sufficient catalysis temperature is reached, e.g. 300-350° C in automobile exhaust.

*Response to Arguments*

8. Applicant's arguments filed December 5, 2003 have been fully considered but they are not persuasive. Applicant argues that Hertl et al. '947 fails to anticipate the limitations of the independent claims because it does not disclose a sufficiently low Si to Al atom ratio that less than about 50% of the low molecular weight hydrocarbons desorb from the hydrocarbon-removing material at a temperature of about 250°C. It is submitted that an example of this Si to Al atom ratio is disclosed to be "less than about 10" in the instant specification and claims (see instant claim 8), which translates to a mole ratio of less than about 20 (2 atoms of Al to one of Si). Hertl et al. disclose the use of a Y-type faujasite zeolite having a Si/Al mole ratio of greater than 5 (12.5 in an example), which is within the claimed range and thus anticipates the claim limitations. In each of the patent and in instant application, these ratios are "preferred" and it should be noted that such ratios commonly exceed 200 (see Hertl et al. table 2). While Hertl et al. disclose examples that use high Si/Al ratios, the preferred zeolites include those with very low Si/Al atom ratios, which anticipate the claim limitations.

9. Regarding the rejection under 35 USC 103(a), applicant argues that the Minami et al. patent requires an adsorbent bypass, which is not needed in the instant invention, however it is submitted that Minami et al. is relied on to show a typical engine exhaust temperature that could exist in the system of Hertel et al., and how the temperature of desorption for the zeolite absorber should correlate to the exhaust temperature so that adsorbed hydrocarbons are not released to the atmosphere.

*Conclusion*

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161. The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0987.

Frank M. Lawrence  
Primary Examiner  
Art Unit 1724

*Frank Lawrence*

1-6-04

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